COURSE DETAIL

METHODS AND MODELS IN COMPLEX SYSTEMS
Country Netherlands
Host Institution Utrecht University
Program(s) Utrecht University
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Physics
UCEAP Course Number 111
UCEAP Course Suffix
UCEAP Official Title METHODS AND MODELS IN COMPLEX SYSTEMS
UCEAP Transcript Title METHOD&MODEL SYSTMS
UCEAP Quarter Units 6.00
UCEAP Semester Units 4.00

Course Description
For systems with a small number of variables, the following topics are covered: basics of modelling; dynamical systems in discrete time; dynamical systems in continuous time; phase space; analyzing dynamical systems with mathematical and simulation methods. For systems with many variables, the following topics are covered: simulations using the Python language; cellular automate; continuous fields; complex systems on networks; agent-based modelling. After completing the course, the student is able to: translate a Complex System to a model which can be analyzed; use mathematical tools to give (approximate) solutions of the model; use computer simulations to analyze the model; critically compare both methods.

Language(s) of Instruction
English

Host Institution Course Number
BETA-B2-CS

Host Institution Course Title
METHODS AND MODELS IN COMPLEX SYSTEMS

Host Institution Campus
Science

Host Institution Faculty

Host Institution Degree

Host Institution Department
Physics

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